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The Township of North Glengarry

Glen Robertson Well Supply System

2018 Annual and Summary Report

In compliance with O. Reg 170/03, section 11 and O. Reg 170/03 schedule 22

Contents

Section 1: Introduction

This report is an annual summary of water quantity, quality system information, system operations and major expenditures for the Glen Robertson Well Supply during the reporting period of January 1, 2018 to December 31, 2018. It was prepared in accordance with section 11 and schedule 22 of the of Ontario's Drinking Water Systems Regulation O. Regulation 170/03.

Section 2: System Description

The Glen Robertson Well Supply System is located on Irwin St within the hamlet of Glen Robertson, which is approximately 11 kms northeast of the Town of Alexandria. This system uses groundwater as its source to supply the residents with treated water and has a rated capacity of 224 m^3/day. It is categorized as a small municipal residential drinking water system. In 2010 the source was deemed to be groundwater under the direct influence of surface water (GUDI), and upgrades were implemented to strengthen the treatment processes.

Section 3: Process and Equipment Description

Supply Well

One 300 mm diameter drilled well located on 3342 Irwin St., *UTM Easting: 538506 UTM Northing: 5022689 (NAD 83, accuracy +/- 10m)*. It is equipped with a submersible well pump rated at 5.1L/sec (67 IGPM), attached to a 50mm diameter discharge pipe.

Pumping Station

All equipment is stored within a single-story brick building, approximately 17.4m^2, (4.7m x 3.7m), located at the Irwin St address.

Treatment Equipment

The raw water is pumped from the well into 50 mm piping. The water is directed towards 3 ultraviolet light systems (UV), 2 in service 1 in stand-by mode. The water passed through a 5-micron filter followed by a 1-micron filter prior to going through the UV system. The water is then directed past the sodium hypochlorite injection point.

The chlorination system utilizes two diaphragm sodium hypochlorite metering pumps with rated capacities of 0.4L/hr, which discharges into the well discharge piping. The pumps have automatic switchover capabilities and will switch over if a problem develops with the lead pump during operation. There are 2 sodium hypochlorite storage tanks with capacities of 20L and are contained within a secondary containment tanks.

One diaphragm sodium silicate metering pump with rated capacity of 0.4L/hr at 680kPa. This product is no longer in use, but the pump is still in place at the facility.

Located outside the building but on the property, is an underground chlorine contact chamber consisting of 52m of 300mm piping. It is complete with a flushing port and a treated water sample line which feeds the on-line analyzers located in the water treatment plant.

Monitoring Equipment

The monitoring system consists of 7-day chart recorders, a plc with 7 days retention and automated alarm/dialler system, currently there is no remote monitoring system in place for this facility at this time. 2 free chlorine analyzers used for regulatory monitoring, one directly after the chlorine injection and one at the end of the contact chamber as the treated water enters the distribution system; a flow meter after chlorination but prior to the contact chamber; and an on-line turbidity analyzer for the treated water as it leaves the contact chamber and enters the distribution are all connected to the monitoring systems listed above.

The UV units are connected to a monitor that displays real time readings. Currently this unit is not equipped with recording capabilities, but the UV units are connected to the alarm/dialler system, so if problems occur thee unit is equipped with an automatically shut down preventing water from exiting the UV and an alarm will be initiated.

System Pressure Equipment

The well pump will start, run or stop based on the system pressure, which can be observed in the water plant prior to sodium hypochlorite injection. There are five 400 L pneumatic pressure tanks operating between 275 to 400 kPa to maintain the system pressure at all times.

Emergency Power

A 17-kW natural gas generator, equipped with auto start, is used to provide power to the water treatment building in the event of an outage. It is located outside the building on the southwest wall.

Additional Equipment.

All piping, valves, controls and appurtenances along with associated mechanical and electrical equipment not mentioned in the description, but are utilized to make up the system.

Monitoring Wells

2 drilled monitoring wells are located on the property where the treatment plant is located. One being located northeast of the building and one located southwest of the building

Section 4: Flow Summary

In order to assess the rated capacity of the WTP in terms of meeting existing and planned uses of the system, a summary of the treated flow rates during this period covered by this report was prepared and is presented below. In accordance with License #181-102 the Glen Robertson Well Supply shall not be operated to exceed the rated of the treatment system. Both the Permit to Take Water (PTTW) and the License requirements allow for a maximum of 224 m^3 total daily for raw and treated water.

The average treated daily flow for 2018 is calculated to be 22.4 m^3 and the maximum daily flow for the year was reported to be 59.0 m^3. This represents 10.0% of the total plant rated capacity. Refer to the appendices for full 2018 data summary

2018 Treated Flow Summary	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Maximum Daily Flow (m^3)	45.1	41.0	39.8	26.5	31.7	49.9	33.3	29.4	30.0	19.8	18.6	59.0
Monthly Average Flow (m^3)	32.2	36.8	20.1	19.5	21.6	22.0	24.4	22.5	24.3	14.2	14.1	17.0
Monthly Average Daily Maximum Instantaneous Flow (L/s)	1.97	1.43	1.23	1.44	1.37	1.43	1.50	1.54	1.62	1.28	1.44	1.39
Rated Maximum Daily Treated Flow for the approved system										224 m^3/day		
Rated Maximum Instantaneous Treated Flow										2.6 L/s		

Section 5: Sampling and Laboratory Analysis Summary

The Township of North Glengarry uses Cadouceon Laboratories as the primary provider for all sample analysis. Cadouceon Laboratories is an accredited laboratory under the Ministry of the Environment and Climate Control requirements. Refer to table below for all results as required.

2018 Microbiological Testing Completed as per Schedule 10, 11 and/or 12 of O. Reg 170/03					
Location	*Number of Samples*	*Range of E. Coli or Fecal Results (#-#)*	*Range of Total Coliform Results (#-#)*	*Number of HPC Samples*	*Range of HPC Results (#-#)*
Raw	52	0 – 0	0 - 2	0	
Treated	52	0 – 0	0 - 0	52	< 2 - 6
Distribution	109	0 – 0	0 - 0	105	< 2 - 42

2018 Operational Testing as per Schedule 7, 8 and or 9 of O. Reg 170/03		
Parameter	*Number of Grab Samples*	*Range of Results unit of measure is mg/L unless otherwise indicated (#-#)*
Raw Turbidity	249	0.11 ntu – 3.62 ntu
Treated Free Chlorine	Continuous	0.33 – 2.12
Distribution Free Chlorine	299	0.59 – 2.20
Fluoride *(If the DWS provides fluoridation)*	n/a	

Additional Sampling or Testing in Accordance with System Approval Requirement or Order				
Date of Order or Approval Amendment	*Parameter*	*Date Sampled*	*Result*	*Unit of Measure*
n/a				

2018 Summary of Inorganic Parameters Tested *Annual sampling or most recent result* *(1ppm = 1mg/L)*					
Parameter	*Sample Date*	*Standard (maximum concentration)*	*Result Value*	*Unit of Measure*	*Exceedance*
Antimony	December 17, 2018	0.006 mg/L	< 0.0001	mg/L	No
Arsenic	December 17, 2018	0.01 mg/L	0.0001	mg/L	No
Barium	December 17, 2018	1.0 mg/L	0.141	mg/L	No
Boron	December 17, 2018	5.0 mg/L	0.020	mg/L	No
Cadmium	December 17, 2018	0.005 mg/L	< 0.000015	mg/L	No
Chromium	December 17, 2018	0.05 mg/L	< 0.002	mg/L	No
Lead	September 14, 2017	0.01mg/L	0.00162	mg/L	No
Mercury	December 17, 2018	0.001mg/L	< 0.00002	mg/L	No
Selenium	December 17, 2018	0.01 mg/L	< 0.001	mg/L	No
Uranium	December 17, 2018	0.02 mg/L	0.00049	mg/L	No
Fluoride	June 19, 2017	1.5 mg/L	< 0.1	mg/L	No
Nitrite	January 14, 2019	1.0 mg/L	< 0.1	mg/L	No
Nitrate	January 14, 2019	10.0 mg/L	0.9	mg/L	No

2018 Summary of Lead Testing *(1ppm = 1mg/L)*							
Location/ Type	*Number of Samples*	*Range of Lead Results (#-#)*	*Unit of Measure*	*Range of Alkalinity Results (#-#)*	*Unit of Measure*	*Average pH*	*Exceedance*
Residential Plumbing							
Non-Residential Plumbing							
Distribution	2			316 - 331	mg/L	6.9	0

2018 Summary of Organic Parameters Tested *Annual sampling or most recent result* *(1ug/L = 0.001mg/L)*					
Parameter	*Sample Date*	*Standard* (maximum concentration)	*Result Value*	*Unit of Measure*	*Exceedance*
Alachlor	December 17, 2018	0.005 mg/L	< 0.3	ug/L	No
Atrazine + N-dealkylated metobolites	December 17, 2018	0.005 mg/L	< 0.5	ug/L	No
Azinphos-methyl	December 17, 2018	0.02 mg/L	< 1	ug/L	No
Benzene	December 17, 2018	0.001 mg/L	< 0.5	ug/L	No
Benzo(a)pyrene	December 17, 2018	0.00001 mg/L	< 0.005	ug/L	No
Bromoxynil	December 17, 2018	0.005 mg/L	< 0.3	ug/L	No
Carbaryl	December 17, 2018	0.09 mg/L	< 3	ug/L	No
Carbofuran	December 17, 2018	0.09 mg/L	< 1	ug/L	No
Carbon Tetrachloride	December 17, 2018	0.002 mg/L	< 0.2	ug/L	No
Chlorpyrifos	December 17, 2018	0.09 mg/L	< 0.5	ug/L	No
Diazinon	December 17, 2018	0.02 mg/L	< 1	ug/L	No
Dicamba	December 17, 2018	0.12 mg/L	< 5	ug/L	No
1,2-Dichlorobenzene	December 17, 2018	0.2 mg/L	< 0.1	ug/L	No
1,4-Dichlorobenzene	December 17, 2018	0.005 mg/L	<0.2	ug/L	No
1,2-Dichloroethane	December 17, 2018	0.005 mg/L	< 0.1	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	December 17, 2018	0.014 mg/L	< 0.1	ug/L	No
Dichloromethane	December 17, 2018	0.05 mg/L	< 0.3	ug/L	No
2-4 Dichlorophenol	December 17, 2018	0.9 mg/L	< 0.1	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	December 17, 2018	0.1 mg/L	< 5	ug/L	No
Diclofop-methyl	December 17, 2018	0.009 mg/L	< 0.5	ug/L	No
Dimethoate	December 17, 2018	0.02 mg/L	< 1	ug/L	No
Diquat	December 17, 2018	0.07 mg/L	< 5	ug/L	No
Diuron	December 17, 2018	0.15 mg/L	< 5	ug/L	No

2018 Summary of Organic Parameters Tested *Annual sampling or most recent result* *(1ug/L = 0.001mg/L)*					
Parameter	*Sample Date*	*Standard* (maximum concentration)	*Result Value*	*Unit of Measure*	*Exceedance*
Glyphosate	December 17, 2018	0.28 mg/L	< 25	ug/L	No
Haloacetic Acid	January 14, 2019		7.55	ug/L	No
Malathion	December 17, 2018	0.19 mg/L	< 5	ug/L	No
2 Methyl-4 Chlorophenoxyacetic (MCPA)	December 17, 2018	0.1 mg/L	< 0.10	ug/L	No
Metolachlor	December 17, 2018	0.05 mg/L	< 3	ug/L	No
Metribuzin	December 17, 2018	0.08 mg/L	< 3	ug/L	No
Monochlorobenzene	December 17, 2018	0.08 mg/L	< 0.2	ug/L	No
Paraquat	December 17, 2018	0.01 mg/L	< 1	ug/L	No
Pentachlorophenol	December 17, 2018	0.06mg/L	< 0.1	ug/L	No
Phorate	December 17, 2018	0.002 mg/L	< 0.3	ug/L	No
Picloram	December 17, 2018	0.19 mg/L	< 5	ug/L	No
Polychlorinated Biphenyls (PCB)	December 17, 2018	0.003 mg/L	< 0.05	ug/L	No
Prometryne	December 17, 2018	0.001 mg/L	< 0.1	ug/L	No
Simazine	December 17, 2018	0.01 mg/L	< 0.5	ug/L	No
THM	January 14, 2018	0.100 mg/L	16.55	ug/L	No
Terbufos	December 17, 2018	0.001 mg/L	< 0.3	ug/L	No
Tetrachloroethylene	December 17, 2018	0.03 mg/L	< 0.2	ug/L	No
2,3,4,6-Tetrachlorophenol	December 17, 2018	0.1 mg/L	< 0.1	ug/L	No
Triallate	December 17, 2018	0.23 mg/L	< 10	ug/L	No
Trichloroethylene	December 17, 2018	0.005 mg/L	< 0.2	ug/L	No
2,4,6-Trichlorophenol	December 17, 2018	0.005 mg/L	< 0.1	ug/L	No
Trifluralin	December 17, 2018	0.045 mg/L	< 0.5	ug/L	No
Vinyl Chloride	December 17, 2018	0.002 mg/L	< 0.2	ug/L	No

Inorganic or Organic Parameters that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards **Only complete if category is large municipal residential, small municipal residential, large municipal non-residential, small municipal non-residential, large non-municipal non-residential**			
Parameter	**Result Value**	**Unit of Measure**	**Date of Sample**
n/a			

Section 6: Significant Expenses Incurred

3 significant expenses occurred during this period and can be described as

- **[ ]** Install required equipment
- **[X]** Repair required equipment
- **[X]** Replace required equipment
- **[ ]** None during this period

Briefly Describe Incident and/or Expenses Incurred:

No.	Project Name	Description	Cost
1	Well Pump Replacement	Due to well pump failure that occurred on Jan 1, 2018. The well pump was removed and replaced with spare unit. Roads Department boom truck used to remove pump from well. Water restored to residents on midday on January 2 and boil water was issued as precaution.	$ 5,125
2	Well Inspection, Well Pump Replacement, Pressure Tank 4 and Isolation Valve Replacement	WTP shut down to complete well inspection, well pump replacement and pressure tank 4 and isolation valve replacement. Roads Department boom truck used to remove pump from well, Outaouais Well Fracturing was used for inspection. Local plumbers on-site to aid in removal and re-installation of well pump and pressure tank. During WTP shut down bulk water tanker was used to maintain system pressure and supply water to residents, as per MECP and MOHLTC directions.	$ 6,150
3	Pressure Tank Isolation Valve Replacement	Defective isolation valves for pressure tanks 1, 2, 3, 5 were removed and replaced. Local plumber on-site to perform removal and installation. In order to complete work WTP shut down and bulk water tanker was used to maintain system pressure and supply water to residents, as per MECP and MOHLTC directions.	$ 9,400

Section 7: Compliance with Licenses, Permits, Approvals and Orders

The system is an approved system through the accreditation process that was rolled out by the Ministry of the Environment, Conservation, and Parks in 2011. The operating authority strives to remain compliant with the Drinking Water Quality Management Standard, the Safe Drinking Water Act and all associated procedures or a guideline. This approach is utilized to creating a multi-barrier approach to ensure safe drinking water.

The following table is a listing of all permits and or licenses that apply to this system:

Description	*Number*	*Version*	*Issue Date*	*Expiry Date*
Water Works License	181-102	2	March 22, 2016	March 21, 2021
Water Works Permit	181-202	2	March 22, 2016	March 21, 2021
Permit to Take Water	3330-9UNQ2Q		March 20, 2015	March 16, 2025

This system actively engages in all required internal and external auditing, as per the Drinking Water Management Standard. The latest external third-party accreditation audit was completed on November 15, 2018. The results indicated an effective system with 8 minor opportunities for improvement.

During this period, all raw water flows were compliant with the permit to take water and all flows were well within the rated capacity for the system, currently at 10.0% of the allowable limits. Furthermore, no operational limits or testing results were exceeded during this reporting timeframe, apart form the pressure loss sustained on January 1, 2018.

All disinfection equipment was operated in such a manner that all license requirements were met at all times. The treatment system was operated at all times to ensure compliance with the Procedure for Disinfection of Drinking Water in Ontario.

All equipment was maintained as per operations manuals and/or calibrated annually by a certified technician.

Section 8: Non-Compliance with Licenses, Permits, Approvals and Orders

There was 1 instance of non-compliance in regard to regulatory requirements. All other licensing, permit and/or approval requirements were met during this reporting period. Furthermore, there were no orders or additional requirements issued to this system.

2018 Reported Incident in accordance to subsection 18(1) of the Safe Drinking Water Act or Schedule 16 of O. Reg 170/03					
Incident Date	*Parameter*	*Result*	*Unit of Measure*	*Corrective Action*	*Corrective Action Date*
01-Jan-18	System Wide Sustained Pressure Loss	0	psi	-boil water advisory issued -replace defective well pump	05-Jan-18

Section 9: Township of North Glengarry Endorsement of Summary Report

A hard copy of the report was given to all members of the municipal council and all information was presented through the Committee of the Whole meeting held on February 20, 2019.

The report was also made available to the public through the Township of North Glengarry website or upon request at the Main office, located at 90 Main St South in Alexandria, or at the Public Works Office, located at 63 Kenyon St West in Alexandria

This report was accepted and endorsed by members of council and staff as presented. No outstanding issues or conflicts were presented during this time.

Section 10: Contact

All efforts have been made to provide accurate and up to date information in a relevant format. In the event that additional information is required please submit all verbal requests by phone at 613-525-3087; in writing by mail to 63 Kenyon St West. P.O. Box 700, Alexandria Ontario, K0C 1A0; or in writing by email to dean@northglengarry.ca

Appendix A:

2018 Glen Robertson Treated Flow (m^3)

	January	February	March	April	May	June	July	August	September	October	November	December
1	18.7	36.4	18.5	18.8	25.9	20.3	19.9	19.5	25.0	17.9	11.1	16.1
2	16.5	36.7	39.8	21.1	18.2	28.2	23.8	20.4	20.6	14.7	10.8	19.6
3	31.6	36.5	21.0	17.9	23.3	23.7	25.4	25.1	27.4	17.4	10.8	12.6
4	27.7	38.3	19.2	19.3	15.9	18.6	29.5	20.1	23.3	14.5	18.6	14.7
5	27.3	35.6	13.9	17.3	22.4	16.2	22.1	20.1	21.8	14.8	8.3	14.7
6	27.2	33.7	17.3	17.0	23.0	16.1	26.6	29.4	25.7	19.8	9.7	15.8
7	32.5	34.3	27.0	23.8	20.1	19.5	25.2	25.7	20.0	19.8	13.6	15.4
8	30.4	35.1	19.1	20.7	17.8	18.0	29.9	23.6	23.3	19.8	14.6	15.4
9	27.0	35.7	20.2	18.9	19.0	21.4	21.7	23.6	23.7	15.0	15.0	15.4
10	27.9	38.3	23.0	15.9	17.2	22.3	25.9	18.3	20.3	19.0	15.0	15.7
11	28.3	36.3	21.0	18.7	19.5	18.5	24.0	21.9	20.2	16.0	15.0	13.4
12	31.9	36.1	16.5	18.5	23.1	19.0	26.6	24.0	22.9	14.0	12.7	13.5
13	33.9	36.3	19.5	20.2	21.4	15.7	24.7	21.8	21.6	14.0	18.2	59.0
14	32.7	35.5	20.8	20.2	22.0	16.8	27.9	27.2	20.5	14.0	14.6	16.9
15	35.7	36.9	18.8	20.2	24.8	19.7	33.3	27.2	25.5	15.5	9.6	16.9
16	30.7	38.5	19.5	14.4	20.7	31.7	25.7	18.4	23.5	13.0	15.9	16.9
17	32.0	38.5	22.7	17.7	19.7	31.7	20.0	24.7	24.7	12.2	15.9	15.1
18	30.5	39.6	20.3	24.2	20.1	18.6	27.3	22.7	23.2	12.2	15.9	14.0
19	31.1	38.5	19.1	17.1	21.9	16.2	22.3	24.1	25.5	14.5	15.2	12.4
20	35.3	38.1	15.0	21.0	25.6	17.5	24.3	25.9	23.3	14.5	10.9	14.8
21	41.8	38.6	17.4	20.2	30.7	17.4	25.7	22.3	24.3	14.5	12.9	16.4
22	42.3	39.5	15.7	26.5	17.1	25.7	24.1	17.5	28.6	14.1	12.9	16.4
23	42.1	40.4	17.3	21.3	17.9	25.8	23.8	20.0	29.5	10.9	17.0	16.4
24	45.1	41.0	25.2	19.7	21.0	23.9	18.7	19.7	30.0	10.8	17.0	15.7
25	34.1	39.9	26.2	18.4	18.7	18.6	20.3	20.9	29.1	10.8	17.0	15.7
26	33.5	38.7	16.9	18.9	24.2	49.9	23.2	20.7	28.6	12.3	14.9	15.7
27	32.2	40.0	16.2	17.6	31.7	22.1	18.1	21.6	28.1	12.3	15.7	17.9
28	37.3	18.5	21.7	20.1	20.3	17.4	21.0	25.6	20.7	12.3	15.7	17.1
29	33.7		15.7	20.2	24.5	29.1	21.0	27.0	23.3	10.3	13.3	17.1
30	34.1		17.3	20.2	21.4	20.2	28.9	18.6	25.5	9.9	16.1	17.1
31	34.0		20.2		19.9		25.7	18.5		8.2		14.2

													2018 Treated Flows Summary
Minimum	16.5	18.5	13.9	14.4	15.9	15.7	18.1	17.5	20.0	8.2	8.3	12.4	8.2
Maximum	45.1	41.0	39.8	26.5	31.7	49.9	33.3	29.4	30.0	19.8	18.6	59.0	59.0
Average	32.2	36.8	20.1	19.5	21.6	22.0	24.4	22.5	24.3	14.2	14.1	17.0	22.4
Total	999.1	1031.5	622.0	586.0	669.0	659.7	756.5	696.1	729.7	439.0	424.0	527.7	8140.3

Appendix B:

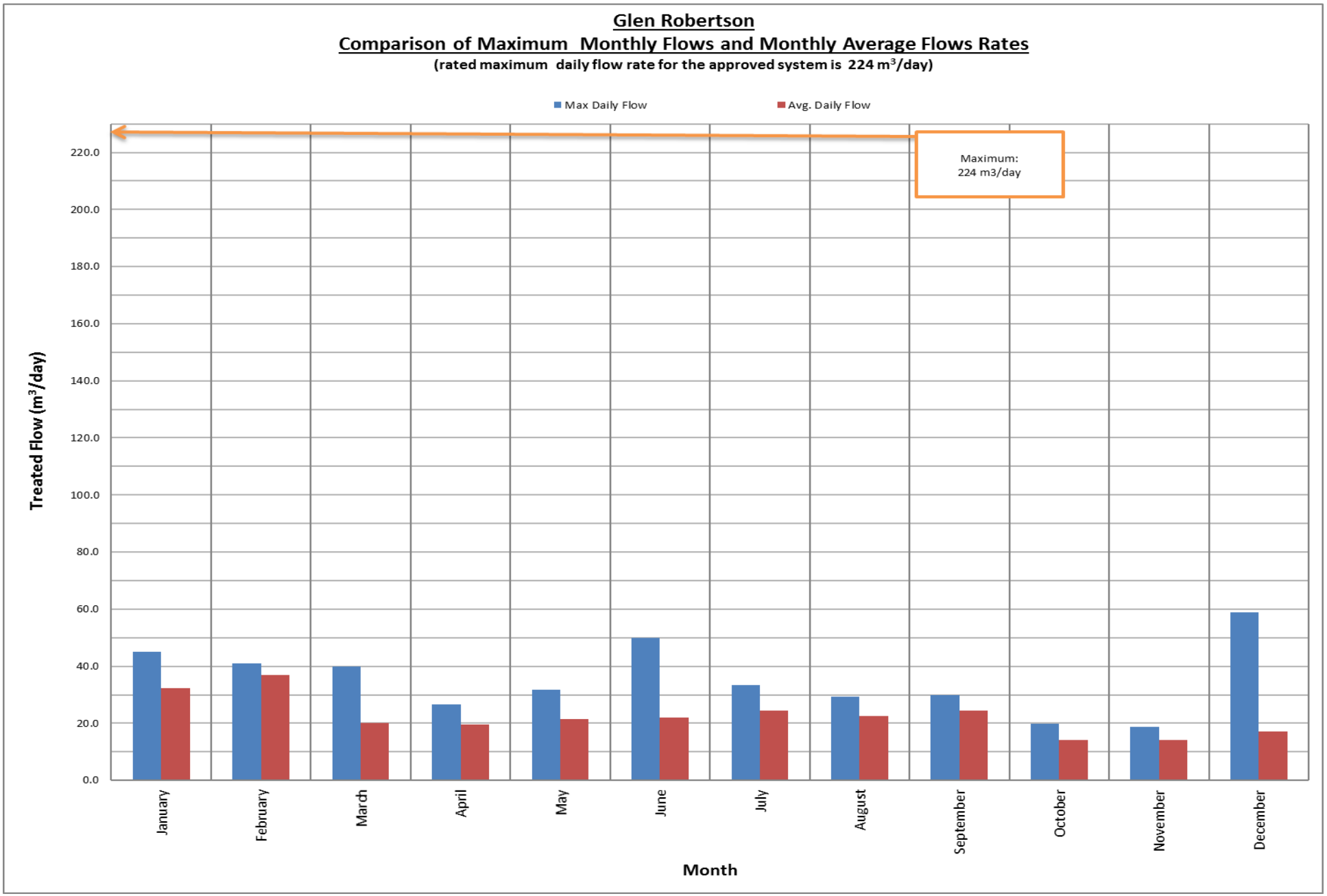
2018 Glen Robertson Maximum Instantaneous Flows(L/s)

	January	February	March	April	May	June	July	August	September	October	November	December
1	1.03	1.21	0.96	1.23	1.27	1.09	1.04	1.12	1.62	1.10	1.00	1.14
2	1.29	1.31	1.15	1.16	0.94	1.29	1.15	1.13	1.06	0.98	0.87	1.00
3	1.39	1.17	1.17	0.98	1.04	1.23	1.45	1.33	1.29	0.92	0.97	0.88
4	1.10	1.43	1.06	1.04	0.98	1.06	1.39	1.08	1.10	1.10	0.96	1.07
5	1.23	1.13	1.06	0.98	1.37	0.92	1.07	1.01	1.11	1.00	0.88	0.82
6	0.99	1.10	1.00	0.78	1.22	1.00	1.10	1.20	1.13	0.96	0.88	0.84
7	1.26	1.02	1.13	1.04	1.00	1.19	1.05	1.39	1.04	1.22	0.76	0.96
8	1.97	1.04	1.13	1.02	1.00	0.95	1.25	1.01	1.24	1.10	1.06	1.21
9	1.05	1.11	0.97	0.99	1.10	1.11	1.17	1.06	1.17	0.98	0.94	1.03
10	1.14	1.35	1.12	1.09	0.88	1.37	1.21	1.02	1.54	1.16	1.16	1.03
11	1.02	1.20	1.14	0.89	0.96	1.00	1.22	1.10	1.09	0.96	0.88	0.90
12	1.33	1.32	0.95	0.85	1.08	0.92	1.27	1.39	1.10	1.28	0.88	0.80
13	1.28	1.22	1.08	0.82	1.27	0.92	1.02	1.07	1.24	0.94	0.94	1.39
14	1.16	1.26	1.10	1.28	1.00	0.95	1.36	1.42	1.03	1.10	0.84	1.17
15	1.18	1.21	1.10	1.04	1.28	0.93	1.50	1.34	1.11	1.10	0.92	0.99
16	1.17	1.08	0.98	0.84	1.00	1.11	1.49	0.95	1.30	1.00	0.77	1.00
17	1.10	1.08	1.00	0.89	1.08	1.23	1.21	1.54	1.09	0.88	1.24	0.85
18	0.99	1.21	1.12	0.93	1.01	1.06	1.29	1.00	1.06	1.00	0.92	0.85
19	1.34	1.20	1.07	0.86	1.07	0.92	1.31	1.23	1.34	0.94	0.82	0.86
20	1.15	1.12	1.10	1.02	1.02	1.19	1.14	1.04	0.95	1.17	0.96	0.81
21	1.41	1.12	0.99	1.25	1.25	0.98	1.29	1.04	0.94	1.20	0.94	0.75
22	1.23	1.35	0.90	1.24	0.90	1.20	1.14	0.84	1.08	0.98	0.98	1.15
23	1.16	1.16	0.87	0.96	0.96	1.17	1.20	1.20	1.08	0.92	1.44	0.97
24	1.36	1.43	1.20	1.27	1.08	1.19	1.01	1.03	1.08	0.92	0.94	0.88
25	1.12	1.25	1.19	1.01	1.04	1.06	1.16	0.99	1.11	0.84	0.94	1.20
26	1.11	1.09	1.00	1.07	1.28	1.43	1.21	1.13	1.25	0.92	1.05	0.90
27	1.27	1.19	1.05	1.00	1.17	0.98	0.93	1.04	1.10	1.01	1.08	0.80
28	1.26	1.19	1.08	0.96	1.08	0.98	0.92	1.34	1.18	1.14	0.96	0.86
29	1.48		0.90	1.11	1.01	1.16	1.10	1.22	0.96	1.10	0.92	0.98
30	1.32		0.87	1.44	0.95	1.16	1.42	1.12	1.22	0.82	1.02	1.10
31	1.12		1.23		0.97		1.29	0.94		0.92		0.96

Maximum	1.97	1.43	1.23	1.44	1.37	1.43	1.50	1.54	1.62	1.28	1.44	1.39
Average	1.23	1.20	1.05	1.03	1.07	1.09	1.21	1.14	1.15	1.02	0.96	0.97

2018 Treated Flows Summary
1.97
1.09

Appendix C


Glen Robertson
Comparison of Maximum Monthly Flows and Monthly Average Flows Rates
(rated maximum daily flow rate for the approved system is 224 m³/day)
Max Daily Flow
Avg. Daily Flow
Maximum:
224 m3/day
Treated Flow (m³/day)
220.0
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
January
February
March
April
May
June
July
August
September
October
November
December
Month